REMARKS

The concurrently filed RCE Transmittal is noted. In view of this RCE Transmittal, it is respectfully submitted that amendments in the Amendment After Final Rejection filed March 25, 2008, including amendments to the drawings and to the specification, are to be entered; and, moreover, that the present amendments to the claims are to be entered. It is respectfully submitted that the present amendments, together with the amendments in the Amendment After Final Rejection filed March 25, 2008, constitute the necessary Submission for this RCE Transmittal; and, moreover, in the view of filing of the RCE Transmittal, the present amendments and the amendments in the Amendment After Final Rejection filed March 25, 2008, must be entered, notwithstanding Finality of the Office Action mailed October 18, 2007.

In view of amendments to the drawings (specifically, amendments to Fig. 10) in the Replacement Sheet submitted March 25, 2008, wherein Fig. 10 has been amended to show a curve portion of the incident light waveguide, together with amendments to the specification consistent therewith, it is respectfully submitted that the objection to the drawings set forth in Item 3 of the Office Action mailed October 18, 2007, is moot. Noting the original application disclosure in the paragraph bridging pages 30 and 31, describing the incident light waveguide 17 having a curve portion with a radius **r** of curvature as 15mm, it is respectfully submitted that amendments to Fig. 10 clearly do not constitute new matter and are to be entered: and upon entry, the objection to the drawings is moot.

Applicants are amending their claims herein, in order to further clarify the definition of various aspects of the present invention. Specifically, Applicants are amending each of claims 1, 2, 21 and 25 to recite that light enters from the at least one optical waveguide (a) into the multi-mode optical waveguide, and with light

having a wavelength entering at least two of the output light waveguides (B) from the multi-mode optical waveguide, so as to branch the light from the multi-mode optical waveguide having the same wavelength into each of the at least two of the output light waveguides (B). Note, for example, Example 1 on pages 30 and 31 of Applicant's specification.

In addition, Applicants are adding new claims 29-40 to the application. Claims 29-32, dependent respectively on claims 1, 2, 21 and 25, recite that the at least one optical waveguide (a) is directly optically connected to the multi-mode optical waveguide. Claims 33-36, dependent respectively on claims 1, 2, 21 and 25, recite that light having the previously recited wavelength enters the multi-mode optical waveguide from the at least one optical waveguide (a); and claims 37-40, dependent respectively on claims 1, 2, 21 and 25, recite that the wavelength is a single wavelength. Note, for example, section [0005] on pages 5 and 6 of Applicants' specification, together with, for example, Example 1 on pages 30 and 31 of Applicants' specification.

Applicants respectfully submit that all of the claims presented for consideration by the Examiner patentably distinguish over the teachings of the references applied by the Examiner in rejecting claims formerly in the application, that is, the teachings of the U.S. patents to Okushima, No. 5,664,038, and to Ido, No. 6,236,784, under the provisions of 35 U.S.C. §102 and 35 U.S.C. §103.

It is respectfully submitted that the teaching of these references as applied by the Examiner would have neither disclosed nor would have suggested such a light branching optical waveguide, or such optical device having such light branching optical waveguide, as in the present claims, including, inter alia, wherein the waveguide includes at least one incident light waveguide (A) optically connected to one end of a multi-mode optical waveguide, and output light waveguides (B), larger

in number than the number of incident light waveguide(s) (A), optically connected to the other end of the multi-mode optical waveguide, wherein an intensity distribution of light entering from at least one optical waveguide (a), of the at least one incident light waveguide (A), into the multi-mode optical waveguide at a connecting surface of the at least one incident light waveguide (A) and the multi-mode optical waveguide, is asymmetric with respect to a geometrical central axis of the waveguide (a), the at least one optical waveguide (a) having a curved structure, with light entering from the at least one optical waveguide (a) into the multi-mode optical waveguide, and with light having a wavelength entering at least two of the output light waveguides (B) from the multi-mode optical waveguide, so as to branch the light from the multi-mode optical waveguide having the same wavelength into each of the at least two of the output light waveguides (B); and (i) an extended line of the geometrical central axis of the at least one optical waveguide (a) does not coincide with a geometrical central axis of the multi-mode optical waveguide (see claims 1 and 3), and/or (ii) a core shape of the multi-mode optical waveguide is asymmetric with respect to a geometrical central axis of the multi-mode optical waveguide (see claim 2).

Furthermore, it is respectfully submitted that the teachings of the references as applied by the Examiner would have neither disclosed nor would have suggested such a method of manufacturing a light branching optical waveguide as in the present claims, the light branching optical waveguide having structure including the waveguides (A), (B) and (a), and the multi-mode optical waveguide, the at least one optical waveguide (a) having a curved structure, with light entering from the at least one optical waveguide (a) into the multi-mode optical waveguide, and with light having a wavelength entering at least two of the output light waveguides (B) from the multi-mode optical waveguide, so as to branch the light from the multi-mode optical waveguide having the same wavelength into each of the at least two of the output

light waveguides (B); the method including positioning the at least one optical waveguide (a), which has the curved structure, such that an extended line of the geometrical central axis of the at least one optical waveguide (a) does not coincide with a geometrical central axis of the multi-mode optical waveguide (see claim 21), or wherein the method includes forming a core shape of the multi-mode optical waveguide to be asymmetric with respect to a geometrical central axis of the multi-mode optical waveguide (see claim 25).

As will be discussed infra, and contrary to the contention by the Examiner, it is respectfully submitted that Okushima does not disclose, nor would have suggested, such structure or method as in the present claims, including the at least one optical waveguide (a) which has a curved structure (i.e., is a curved optical waveguide); and would have neither taught nor would have suggested problems arising in connection therewith, and advantages achieved by the present invention.

Moreover, and as will also be discussed infra, it is respectfully submitted that in Okushima the structure provides separation of light of different wavelengths, that is, wherein when combined light of λ1 and λ2 inputted to the first optical waveguide is introduced into an intermediate optical waveguide, the light λ1 and light λ2 are separated from each other by the intermediate optical waveguide. It is respectfully submitted that this reference, either alone or in combination with the teachings of Ido, would have neither disclosed nor would have suggested structure as in the present claims, or a method of forming such structure as in the present claims, wherein light enters from the at least one optical waveguide (a) into the multi-mode optical waveguide, and with light having a wavelength entering at least two of the output light waveguides (b) from the multi-mode optical waveguide, so as to branch the light from the multi-mode optical waveguide having such wavelength into each of the at least two of the output light waveguides (e). That is, in contrast to Okushima,

while Okushima separates light of different wavelengths into respective output light waveguides, the structure according to the present invention branches light having the same wavelength into each of the at least two of the output light waveguides.

Furthermore, it is respectfully submitted that the teachings of the applied references would have neither disclosed nor would have suggested such light branching optical waveguide as in the present claims, having features as discussed previously in connection with claims 1-3, and, additionally, having features as in the dependent claims, dependent ultimately on claims 1 and 2, including, inter alia (but not limited to), wherein an optical central axis having a peak intensity in the intensity distribution of light entering into the multi-mode optical waveguide from the at least one optical waveguide (a) substantially coincides with the geometrical central axis of the multi-mode optical waveguide (see claims 4 and 12); and/or wherein the core shape of the multi-mode optical waveguide has a notch at at least one of its side edges (see claims 5 and 13), particularly wherein such notch is obtained by a technique as in claims 6 and 14, especially with a shape of the notch as in claims 6 and 14; and/or wherein the at least one incident light waveguide (A) includes one incident light waveguide and the output light waveguides (B) include at least two output light waveguides, with a branching ratio between quantities of light branched into the at least two respective output light waveguides (B) being substantially equal (see claims 7 and 15); and/or wherein at least one of the at least one incident light waveguide (A) and the output light waveguides (B) include a single-mode optical waveguide (note claims 8 and 16); and/or materials of the core or clad of the multi-mode optical waveguide, as set forth in claims 9, 10 and 17; and/or offset distance between the extended line of the geometrical central axis of the at least one optical waveguide (a) and the geometrical central axis of the multi-mode optical waveguide, as in claims 19 and 20.

In addition, it is respectfully submitted that the teachings of the applied references would have neither disclosed nor would have suggested such a method as discussed previously in connection with claims 21 and 25, and including additional features as in claims dependent on claims 21 and 25, including (but not limited to) wherein the at least one incident light waveguide (A) is one incident light waveguide (A), the at least one optical waveguide (a) is one optical waveguide (a), and the output light waveguides (B) are at least two in number (see claims 24 and 28).

Moreover, it is respectfully submitted that the teachings of these applied references would have neither disclosed nor would have suggested such light branching optical waveguide, or such method, as in the present claims, having features as discussed previously in connection with claims 1, 2, 21 and 25, and, moreover, wherein the at least one optical waveguide (a) is directly optically connected to the multi-mode optical waveguide (see claims 29-32); and/or wherein the light entering the multi-mode optical waveguide from the at least one optical waveguide (a) has said wavelength (see claims 33-36); and/or wherein the wavelength is a single wavelength (see claims 37-40).

The present invention is directed to a light branching optical waveguide and optical device using the same, as well as a method of manufacturing such light branching optical waveguide. Such waveguide and device are used in optical transmission systems, and there has been a growing demand for such systems with the recent widespread use of personal computers and the internet.

An optical branching circuit and an optical multiplexing circuit serving as basic elements are indispensable to an integrated optical circuit, and an optical waveguide branched to provide a Y shape has been conventionally known. A multi-mode interference type Y branch optical waveguide has been known, and various kinds of

such multi-mode interference type Y branch optical waveguides have been proposed, as discussed in the paragraph bridging pages 4 and 5 of Applicants' specification.

However, various problems arise in connection with such multi-mode waveguides. For example, equal branching ratio of light is achieved only in the case where the mode of light propagating in the incident waveguide is a basic mode alone, where the basic mode is symmetric with respect to the central axis of the incident waveguide, where the central axis of the incident waveguide and that of the multi-mode waveguide coincide with each other, and where the multi-mode waveguide is of a shape symmetric with respect to its central axis. In the case where the intensity distribution of light propagating in an optical waveguide on an incident side is asymmetric with respect to the geometrical central axis of the optical waveguide, there arises a problem that the branching ratio of light cannot be equal. Moreover, it is noted that when the incident light waveguide has a curvature, the basic mode is generally asymmetric.

Furthermore, in a multi-mode type light branching optical waveguide, the position at which light of a basic mode and light of a higher-order mode interfere with each other varies depending on a wavelength. Thus, there arises the additional problem that <u>each of</u> a loss of light intensity <u>and</u> a branching ratio <u>is dependent on the wavelength</u>. Accordingly, as the design of the multi-mode type light branching optical waveguide must be changed in accordance with the wavelength of the light, there arises a still further problem of, e.g., reduction of efficiency of production of the waveguide.

Against this background, and as described in the second full paragraph on page 7, and in the paragraph bridging pages 7 and 8 of Applicants' specification, the present inventors have found that a branch loss and a variation in branching ratio

can be reduced by shifting the geometrical central axis of an incident light waveguide and the geometrical central axis of a multi-mode optical waveguide, and/or by making the core shape of the multi-mode optical waveguide asymmetric with respect to the geometrical central axis of the waveguide, even when the intensity distribution of light propagating in an optical waveguide on an incident side is asymmetric with respect to the geometrical central axis of the optical waveguide. Moreover, the present inventors have further found that such branch loss and variation in branching ratio can be suppressed, by making the core shape of the multi-mode optical waveguide asymmetric with respect to the geometrical central axis of the waveguide.

To emphasize, having investigated specific problems of branch loss and a variation in branching ratio, arising in connection with light branching optical waveguides using multi-mode optical waveguides and incident light waveguides wherein at least one of the incident light waveguides has a curved shape, Applicants have found structure which avoids these problems, achieving a light branching optical waveguide having a reduced branch loss and a reduced variation in branching ratio; and, additionally, provide structure wherein not only are such branch loss and variation in branching ratio reduced, but the light branching optical waveguide has a small wavelength dependency.

Thus, Applicants have found that, with light branching optical waveguide structure including at least one incident light waveguide that is curved and a multi-mode optical waveguide, a branch loss and a variation in branching ratio can be reduced by an offset between the geometrical central axis of the incident light waveguide and the geometrical central axis of the multi-mode optical wavelength. Note the last full paragraph on page 16 of Applicants' specification.

Applicants have also found, as a further feature of the present invention, that by forming the core shape of the multi-mode optical waveguide to be asymmetric

with respect to the geometrical central axis of the multi-mode optical waveguide, light propagating in the multi-mode optical waveguide is provided with an intensity distribution having two nearly equal peaks, so that the branching of light at a branching ratio of 1:1 can be achieved.

In addition, as described in the paragraph bridging pages 19 and 20 of Applicants' specification, a low-loss, multi-mode, light branching optical waveguide having a reduced branch loss, a reduced variation in branching ratio and small wavelength dependence is achieved, where the extended line of the geometrical central axis of an incident light waveguide does not coincide with the geometrical central axis of the multi-mode optical waveguide, and the core shape of the multi-mode optical waveguide is asymmetric with respect to the geometrical central axis of the multi-mode optical waveguide. Note, in particular, the paragraph bridging pages 20 and 21 of Applicants' specification.

Thus, note that the light branching optical waveguide of the present invention has a function of achieving the branching of light to a branching ratio of 1:1 (equal) in the case that the light exhibits asymmetry in the incident waveguide. To accomplish this, it is important to change asymmetric light of the optical waveguide (a) to a symmetric light. <u>A problem to be solved by the present invention is changing an asymmetric light caused by optical</u> waveguide (a), <u>having the curved structure,</u> to symmetric light. This problem is solved by the present invention; i.e., by providing the branching ratio between the quantities of light branched into the two output light waveguides to be substantially equal, this means that the intensity distribution of light has been changed to symmetrical distribution.

It must be emphasized that according to the present invention, a low-loss light branching optical waveguide having a reduced branch loss and reduced variation in branching ratio is provided, even though the intensity distribution of light propagating

in an optical waveguide on an incident side is asymmetric with respect to the geometrical central axis of the optical waveguide, e.g., due to the use of the curved incident optical waveguide (a).

It is also emphasized that the present invention is directed to structure and a method wherein light of a wavelength in the multi-mode optical waveguide is branched; that is, light of a same wavelength is passed into each of at least two output optical waveguides. As discussed further infra, it is respectfully submitted that this is different from the structure of Okushima, wherein light of different wavelength is separated due to the intermediate optical waveguides, into separate output light waveguides, such that the light of the different wavelengths is transmitted into a respective one of the output light waveguides.

Okushima discloses an optical waveguide structure which includes a first optical waveguide, a second optical waveguide including a pair of optical waveguides, and an intermediate optical waveguide for connecting the first and second optical waveguides to each other, the intermediate optical waveguide being capable of propagating light of a high order mode therein. This patent further discloses that the intermediate optical waveguide may have an optical waveguide width greater than that of the first optical waveguide, or that the intermediate optical waveguide may have a refractive index higher than that of the first optical waveguide, or that the first optical waveguide and the intermediate optical waveguide may be arranged such that the center axes thereof are not aligned with each other, or that a connecting end portion of the first optical waveguide to the intermediate optical waveguide may be formed so as to have an asymmetrical refraction index distribution. Note column 3, lines 22-43. See also column 3, lines 18-21, describing that the disclosed optical waveguide structure can realize a wavelength separation action of a high performance with the propagation loss of light reduced, in a

construction in which no gap is produced between waveguides. See also the paragraph bridging columns 3 and 4 of this patent; and note also column 5, lines 21-27. This patent document further discloses that the intermediate optical waveguide 13 (note Fig. 1) is formed such that the optical waveguide width is greater than the optical waveguide width of the first optical waveguide 11, and the first optical waveguide 11 and the intermediate optical waveguide 13 are arranged such that center axes P and Q thereof may not be aligned with each other. See column 8, lines 47-52.

It is emphasized that the waveguide structure disclosed in Okushima functions so that combined light of light λ1 and λ2 are separated from each other respectively to output waveguides 12A and 12B. The intermediate optical waveguide 13 functions as a wavelength separation section which can propagate light of a high order mode therein. Note column 8, lines 23-38, of Okushima.

In contrast, and as discussed previously, the present invention structure is a low-loss light branching optical waveguide having a reduced branch loss and reduced variation in branching ratio, notwithstanding that the intensity distribution of light propagating in an optical waveguide on an incident side is asymmetric. Such asymmetry arises, e.g., and not to be limiting in connection with aspects of the present invention, with the at least one optical waveguide (a) having a curved structure. It is respectfully submitted that Okushima does not disclose, nor would have suggested, such structure and method as in the present claims, including the at least one optical waveguide (a) having a curved structure, with the input of light therefrom into the multi-mode optical waveguide, and with branching of light of a same wavelength into at least two output light waveguides, problems arising in connection therewith, and avoidance of such problems as achieved by the present invention, including, e.g., wherein an extended line of the geometrical central axis of

the at least one optical waveguide (a) does not coincide with a geometrical central axis of the multi-mode optical waveguide (note, e.g., claims 1 and 21); and/or wherein a core shape of the multi-mode optical waveguide is asymmetric with respect to a geometrical central axis of the multi-mode optical waveguide (note, e.g., claims 2 and 25).

As can be seen in the foregoing, the structure and method of Okushima, having separation of light of different wavelengths, involve different technology then that of the present invention; and it is respectfully submitted that Okushima does not disclose, nor would have suggested, the presently claimed structure and method, including, inter alia, wherein light having a wavelength enters at least two of the output light waveguides (B) from the multi-mode optical waveguide so as to branch the light from the multi-mode optical waveguide having the same wavelength into each of the at least two of the output light waveguides (B).

It is respectfully submitted that the subject matter of the present invention is completely different from that of Okushima. The present invention relates to a light branching optical waveguide for splitting light having a wavelength to at least two output light waveguides, preferably having same intensities. This is designated as a beam splitter. In contrast, the subject matter of Okushima relates to an optical wave branching unit so that light having plural wavelengths is separated to respective output waveguides. It is called a directional coupler.

The object of the present invention is completely different from that of Okushima. Thus, the object of the present invention is to provide a low-loss light branching optical waveguide. The incident light basically has a single wavelength, and the divided output lights have the same wavelengths as each other and with the incident light, for example. In contrast, the object of Okushima is to provide an optical wavelength separation unit. The incident light is a combined light of

wavelength λ1 and λ2 with separated lights λ1 and λ2 outputted separately from each other. The mechanism of the separation is described from column 3, line 64, to column 4, line 16, of Okushima. A side wall of the first optical waveguide 11 on the optical waveguide 12A side and a side wall of the intermediate optical waveguide 13 on the optical waveguide 12A side have to be connected flush with each other, and the length T of the intermediate optical waveguide 13 has to be approximately 15,400 μm. The degree of difference between the incident axis and the intermediate optical waveguide axis is quite different from that between the incident axis and the multi-mode optical waveguide axis in the present invention. The length of the intermediate optical waveguide in Okushima is also quite different from that of the multi-mode optical waveguide of the present invention.

The contention by the Examiner that the at least one optical waveguide (11) in Okushima has a curved structure, the Examiner relying on Fig. 2 in Okushima, is respectfully traversed. Initially, it is emphasized that the drawings in Okushima are not engineering drawings; and, moreover, it is respectfully submitted that these drawings do not stand for the proposition raised by the Examiner. That is, it is respectfully submitted that the broken lines for the first waveguide (11) in Fig. 2 in Okushima are not intended to show a curved structure. This can be seen from Figs. 1, 2 and 4 of Okushima, described in column 7, lines 38-43, 47 and 48, as showing a schematic view of a same optical waveguide. It is respectfully submitted that the optical waveguides of Figs. 2 and 4 clearly do not look like they have a curved structure; and there is no description about a curved structure of the first waveguide (11) in Okushima. Taking the teachings of Okushima as a whole, as required under 35 U.S.C. §102 and 35 U.S.C. §103, it is respectfully submitted that this reference does not disclose, nor would have suggested, the presently claimed light branching optical waveguide, including, inter alia, the at least one incident optical waveguide

having the curved structure, and with positioning of this at least one incident optical waveguide and/or with the core shape of the multi-mode optical waveguide, and advantages due thereto, among other features of the present invention including branching of light having the same wavelength into at least two output waveguides.

That Okushima discloses a different waveguide structure than that of the present claims can be seen in dimensions thereof as described in Okushima, as compared with those described and, in particular, claimed in connection with the present invention (see especially claims 19 and 20). Thus, note that in Fig. 4 of Okushima, the length of the multi-mode optical waveguide is described as being 15,400 μm. Compare with that of the present invention, e.g., in Example 1 on pages 30 and 31, describing that the multi-mode optical waveguide has a length L of 220 μm.

In addition, note differences between offset distances in connection with the present invention, and in connection with Okushima. That is, note that in Okushima the offset distances are, e.g., 5 μm and 10μm, referring to Figs. 4 and 6 of Okushima. Such offset distances are different from that of the present invention, e.g., in claims 19 and 20, 1.5 μm or less, and 0.7 μm or less, respectively. Clearly, the teachings of the applied references, including Okushima, would have taught away from the present invention, including the offset distances as in claims 19 and 20.

In connection with claims 19 and 20, the Examiner contends in the paragraph bridging pages 7 and 8 of the Office Action mailed October 18, 2007, that it would have been obvious to one of ordinary skill in the art to offset the waveguides a specific amount to yield a desired branching ratio or optimum optical loss. In view of the large difference between the offset distance recited in the present claims as compared with the offset distance in Okushima, as referred to previously, it is

respectfully submitted that the disclosure in Okushima would have taught away from the presently claimed invention, including the offset distance, and function and advantage due thereto as achieved by the present invention.

It is respectfully submitted that the additional teachings of Ido would not have rectified the deficiencies of Okushima, such that the presently claimed invention as a whole would have been obvious to one of ordinary skill in the art.

Ido discloses an asymmetric Y branch optical waveguide having an input waveguide for entering light therein, two output waveguides for outputting the light therefrom and a multi-mode waveguide which is disposed between the input waveguide and the output waveguides and which generates a plurality of mode lights therefrom, and wherein the multi-mode waveguide is made asymmetric with respect to a center line extending in the direction of an optical axis. See column 2, line 52-60. See also the paragraph bridging columns 2 and 3 of this patent. This patent discloses a further embodiment of another asymmetric Y branch optical waveguide, which includes an optical waveguide for entering light therein, two output waveguides for outputting the light therefrom, and a multi-mode waveguide which is disposed between the input waveguide and the two output waveguides and which generates a plurality of mode lights therefrom, and wherein distances between sides of core portions of the multi-mode waveguide and a center line differ from each other at least at a portion with respect to the direction of traveling of the light. Note, column 3, lines 7-17. Note also column 9, lines 34-50.

Even assuming, <u>arguendo</u>, that the teachings of Ido and of Okushima were properly combinable, such combined teachings would have neither disclosed nor would have suggested the presently claimed invention, including use of the recited <u>curved</u> incident waveguide and problems arising in connection with use thereof, and

avoidance of such problems through the presently claimed subject matter, as discussed previously.

Moreover, it is respectfully submitted that the Y-branch optical waveguide in Ido has a first optical waveguide (waveguide for input) in which the intensity distribution of light is symmetric, and second optical waveguides (waveguides for output) in which the intensity distribution of light is asymmetric.

In contrast, according to the apparatus of the present structure, and as in all of the present claims, the optical waveguide (a), having a curved structure, would have an asymmetric intensity distribution of light; and, more specifically, in the claimed device the optical waveguide (a) has a curved structure so that it can provide compact-sized circuits, this curved structure causing asymmetric intensity distribution of light at the portion where the optical waveguide (a) and the multi-mode optical waveguide are connected. According to the present invention, the intensity distribution of light is changed from asymmetric at the connecting surface between incident light waveguide (a) and the multi-mode optical waveguide, and the branching ratio between the quantities of light branched into the output optical waveguides (B) is equal (e.g., 1:1) at the portion where the optical output waveguides (B) and the multi-mode optical waveguide are connected, due to the present invention correcting asymmetric light to symmetric light.

Thus, while in Ido, the input optical waveguide has an intensity distribution of light that is symmetric and an optical waveguide for output in which the intensity of distribution of light is asymmetric, according to the present invention the intensity distribution of light is asymmetric at the input portion and is symmetric at the output of the multi-mode optical waveguide, opposite to that of Ido.

Clearly, Ido, alone or in combination with Okushima, would have neither taught nor would have suggested, and in fact would have taught away from, the

presently claimed structure and method, including the curved structure of the at least one optical waveguide (a) of the at least one incident optical waveguide (A); and since Okushima is silent as to a curved incident optical waveguide, as shown previously the combined teachings of these applied references would have taught away from this structure of the present invention, causing problems solved by the present invention.

Moreover, it is respectfully submitted that even were the teachings of Okushima and of Ido to be properly combinable, such combined teachings would have neither disclosed nor would have suggested such structure and method as in the present claims, including wherein light having a wavelength enters at least two of the output light waveguides (B) from the multi-mode optical waveguide, so as to branch the light from the multi-mode optical waveguide having the same wavelength into each of the at least two of the output light waveguides (B), as in the present claims, again noting the technology of Okushima for separating lights λ1 and λ2 into separate output light waveguides.

In view of the foregoing comments and amendments, and in view of the concurrently filed RCE Transmittal, entry of the present amendments and of the amendments in the Amendment After Final Rejection filed March 25, 2008 and reconsideration and allowance of all claims presently in the application, are respectfully requested.

To the extent necessary, Applicants hereby petition for an extension of time under 37 CFR 1.136. Kindly charge any shortage of fees due in connection with the filing of this paper, including any extension of time fees, to the Deposit Account of

Antonelli, Terry, Stout & Kraus, LLP, Account No. 01-2135 (case 396.46073X00), and please credit any overpayments to such Deposit Account.

Respectfully submitted,

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